

PC BUILDER

Build your own PC

Why spend hundreds of pounds buying a PC when you can build your own for just £240? Chris Finnamore shows you how to build an upgradable computer for peanuts

You could spend thousands on a PC, but there's no point if you just want to run office programs and surf the web. In this month's *PC Builder* we show you how to build a PC for just £240 including VAT.

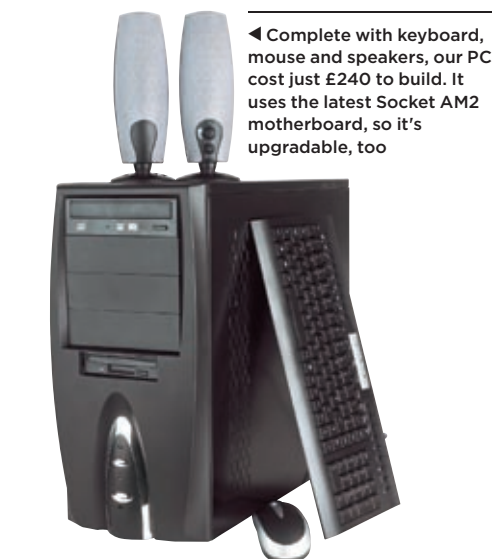
While you can buy cheap ready-built PCs, they're usually built from older components and are hard to upgrade. The computer we show you how to build is fully upgradable to the latest AMD Socket AM2 processor and PCI-E x16 graphics card for games. It has enough power for most applications and managed an overall score of 67 in our benchmarks. The integrated graphics can't handle modern games, but upgrading the PC with our reference Nvidia GeForce 7800GT graphics card produced playable scores of 60.2fps in Doom 3 and 25.2fps in Call of Duty 2.

Our shopping list below includes all the components we used, but you can replace these with other products from other suppliers. When choosing your hardware and suppliers, remember you can buy Windows XP Home Edition OEM only if you buy another piece of hardware at the same time. If you don't, you'll have to buy the full version, which is more expensive.

Once all your components have arrived, check to make sure everything is there and that you have all the right bits. If you have space, lay out all the boxes on a table so you can see where everything is. Make sure you clear enough space to lay the case flat.

1 Take both sides off the case. The sides are secured with four thumbscrews at the rear. The Cascom case's panels are attached at the top, so pull each panel outwards to release it. The case has a built-in power supply, but it has a 20-pin ATX connector only, not the modern 24-pin, so it needs to be replaced with the extra power supply you bought.

While keeping one hand on the power supply to stop it falling, unscrew the four screws at the rear and remove it. Power supplies fit in one way only, so position the supply so the holes line up with those at the back of the case. The case has a ledge on which to



◀ Complete with keyboard, mouse and speakers, our PC cost just £240 to build. It uses the latest Socket AM2 motherboard, so it's upgradable, too

rest the power supply, so slide it on to the ledge and steady it with your hand while you screw it into place.

2 Before you install your motherboard, you must install the backing plate. Lay your case on its side with the open part facing upwards. The Cascom case already has a backing plate that motherboards' rear ports slot into, which you need to remove. Bend it back and forth until the small bits of metal break. With the finished, shiny side facing outwards, line up your new backing plate with the hole in the case; the PS/2 ports go at the top towards the power supply. Press the plate into the hole from the inside and make sure it's secure.

3 Remove your motherboard from its anti-static bag and, holding it by its edges, lower it into the case. Move it sideways so the motherboard's ports fit into the appropriate holes in the backing plate. Now check which of the screw holes in the case correspond to the holes in the board. The Cascom case has both raised and sunken screw holes. If you need to use the sunken screw holes, you'll need to screw brass risers (supplied with the case) into them to make them the same height as the raised holes.

Put the motherboard in the bottom of the case and push the ports into the case's backing plate. Screw the board down using the screws supplied with the case.

4 Stand your case upright and pop out the top 5¼in bay's plastic cover by squeezing one of the clips on the inside of the cover. There's a metal plate covering the drive bay, which you can remove by wobbling it back and forth until the metal breaks. Then remove the metal plate on the inside of the floppy bay and pop out the cover. Slide your optical drive into the 5¼in bay from the front of the case until the faceplate is flush with the case and the screw holes on the sides of the drive line up with the case's screw holes. Screw the drive into place using two screws on either side. You'll find this easier if you insert the screws loosely at first and tighten them when they're all fitted.

Slide the floppy drive into the floppy bay until its screw holes line up with those in the case. Screw it into

FAQ

Q I'd like to build my own PC. Do I need any special tools, and are there any precautions I should take?

A Building a PC is quite simple, but you have to remember you're dealing with delicate electronic components. Processors, memory and motherboards are particularly sensitive to electrostatic shocks. If you fail to take precautions, you can destroy an expensive component. For this reason, make sure you earth yourself before touching any components by touching a radiator first. To be extra safe, you can buy anti-static wrist straps that keep you earthed. To avoid damage, make sure you keep your components in their respective boxes and anti-static bags until you need to fit them.

The only other equipment you will need is a medium-sized Phillips screwdriver. If possible the screwdriver should be magnetised, as this will reduce the risk of you dropping screws inside the PC's case.

Chris Finnamore

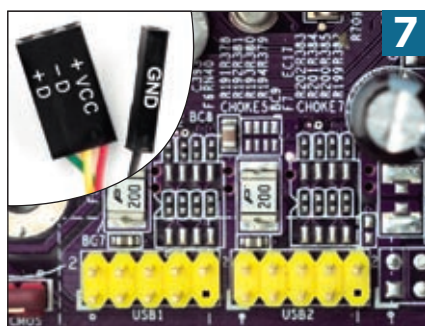
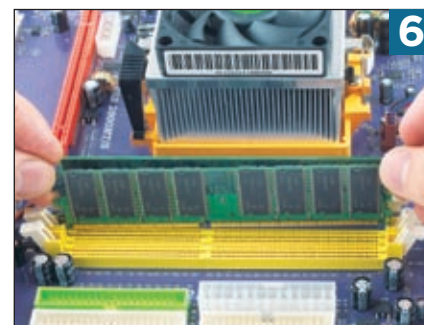
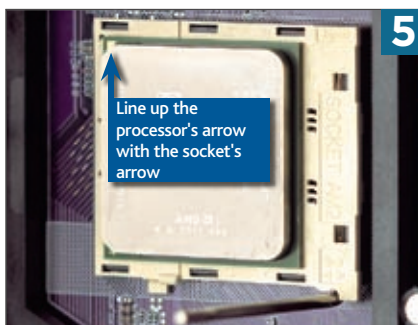
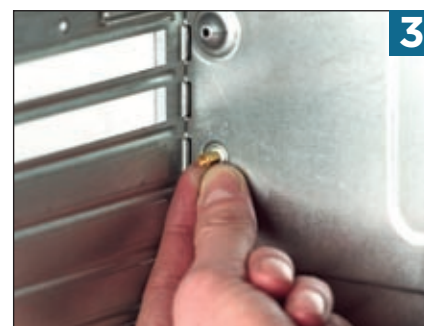
Components and handhelds expert



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SHOPPING LIST

www.ebuyer.com	
AMD Sempron 2800+ processor	£28
Cascom KL-700ATX case	£16
Sansun True 300W power supply	£9.50
Sony floppy disk drive	£4
Extra Value keyboard, mouse and speakers bundle	£8.50
Windows XP Home Edition OEM	£55
www.scan.co.uk	
ECS C51GM-M motherboard	£36
512MB Corsair Value Select DDR2 PC4200 memory	£36
80GB Hitachi Deskstar 7K80 hard disk	£28
Asus DRW-1608P3S DVD-RW drive	£19
TOTAL	£240



place with two screws each side. With the circuit board side facing down, slide your hard disk into one of the internal 3½in bays and secure it with two screws either side.

5 Lift up the lever next to the processor socket. One of the processor's corners has a gold arrow printed on it. Match this up with the arrow printed on the socket and put the processor in the socket. If it's lined up correctly, it will drop into place without any force. If it doesn't, check the processor is lined up correctly. Lower the lever to lock the processor in the socket. The AMD Sempron 2800+ processor is supplied with its own cooler. Remove the plastic cover from the bottom of the cooler, but be careful not to touch the thermal paste on the bottom. Put the cooler on top of your processor and hook both clips on to the socket surround's mountings. Lower the black lever to lock it in place. Plug the cooler's fan into the processor fan header on the motherboard; the motherboard's manual has a diagram if you can't find it.

6 To fit the memory, first spread apart the clips at either end of the memory slot closest to the processor. RAM modules have a notch about halfway down their connector, which corresponds to a ridge in the memory slot. Holding the module by its edges, push in both ends firmly until the clips lock into place.

7 The motherboard's manual has detailed instructions on connecting the front ports, power and reset switches and LEDs, but we'll take you through the basics. Match up the blanked-off

hole in the audio connector (written on the plug attached to the case) to the missing pin in the motherboard's audio header and plug it in.

The front USB ports are trickier, as the case has two connectors (one for each port and each with a three-pin and single-pin plug) rather than a single moulded plug. These have to go in the right place in the USB headers for the USB ports to work. If you have any problems, consult your motherboard's manual, which has a diagram that numbers the pins. Both front-panel USB connectors plug into the same header block. Take the first cable and plug the three-pin connector into pins 1, 3 and 5, with the pin labelled +VCC into pin 1 (this is at the bottom-left of the USB header). Plug the GND connector into pin 7. Then plug the second cable's three-pin connector into pins 2, 4 and 6, with the +VCC pin into pin 2 (top-left of the USB header) and the GND connector into pin 8. This will leave one pin at the top-right unconnected.

You'll need the motherboard's manual to wire up the rest of the front-panel cables. The case's cables are all clearly labelled, but you have to get them in the right front-panel header pins and the right way around. Plug them in according to the manual's diagram. There is also a speaker connector, but the ECS motherboard doesn't have a speaker header, so you can leave this disconnected.

8 Plug the 24-pin ATX connector into the motherboard. It plugs in only one way, so don't force it if it doesn't fit. Plug in the four-pin square connector from the power supply into the motherboard, too. Again, it will fit only one way.

Plug one of the four-pin Molex connectors into the optical drive and the black SATA power connector into the hard disk. The floppy drive has its own connector, which is a small four-pin plug. Finally, plug one of the four-pin Molex connectors into the rear case fan.

9 The ECS motherboard comes with an IDE ribbon cable, a floppy ribbon cable and a SATA cable. Plug one end of the IDE cable into the motherboard's IDE port, and the other into the optical drive. The plugs have a notch on them, so they'll fit only one way. Plug the floppy cable into the motherboard's floppy port; again, it fits only one way round. The floppy cable can plug either way around into the floppy drive; make sure you plug it in with the red wire on the left, as above. The hard disk uses the SATA cable. Plug one end into either of the motherboard's SATA ports and the other into the hard disk. SATA cables can go in one way round only.

Put the sides back on the case, plug in your keyboard, mouse and monitor, and turn on the PC. Check that the reset switch works, and the power and hard disk lights work properly. If the floppy drive's light stays on all the time, you've probably plugged in the cable the wrong way round. Your PC is now finished, and you can install Windows in the usual way.

Next month

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